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Great Lakes - St. Lawrence River Water Levels



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Water Level Forecast

Favourable Conditions For Summer

Water level and flow conditions on the Great Lakes and St. Lawrence River should be within acceptable ranges for both shoreline property owners and recreational boaters this summer.

For the next six months, the lakes are expected to remain within ranges that will not pose risks of flooding. However, Lakes Michigan-Huron, St. Clair and Erie are forecast to remain above their long-term average levels through the summer. Lakes Superior and Ontario will likely remain close to their average levels for the next several weeks.

The forecast means that water levels throughout the Great Lakes-St. Lawrence system should remain well above chart datum through the summer. Therefore, recreational boaters should experience fairly good conditions on charted navigation channels.

"It looks as though water levels will remain well within comfortable ranges of fluctuation this summer," said Ralph Moulton, Manager of Environment Canada's Great Lakes Water Level Communications Centre in Burlington.

"Assuming that the weather co-operates, we can expect fairly pleasant water level conditions for the summer recreation and boating season."

Lakes Erie and Ontario are near their peak levels for the year, but they could rise slightly in June before beginning their gradual descent. Lakes St. Clair and Michigan-Huron are expected to continue rising through June and July, while Lake Superior will continue its upward trend through August.

The St. Lawrence River between Lake Ontario and Montréal should remain above chart datum throughout the summer. Currently, water level conditions on the river are near their long-term averages. Conditions on the river will vary through the summer, but the extreme highs and lows of last spring and summer will not likely be repeated this year.

**The Great Lakes & St. Lawrence River
World's Largest System Of Fresh Surface Water**

The Great Lakes and St. Lawrence River are referred to as a "system" because they are interconnected, and because a major change in the water level or flow in one part of the system can affect levels or flows both upstream and downstream. The only exception to this is Lake Ontario, which is affected by upstream water supplies even though its level does not affect the system upstream, due to the steep drop at Niagara Falls.

Lake Superior is at the upper end of the system. This lake, which contains the largest volume of water (equal to more than all of the other lakes combined), drains through the St. Marys River into Lakes Michigan and Huron. Because these two lakes are connected by the wide and deep Straits of Mackinac, they respond to precipitation and changes in levels and flows as if they were one lake.

Lakes Michigan-Huron drain through the St. Clair River, Lake St. Clair (which is not one of the five Great Lakes but is still part of the system), and the Detroit River into Lake Erie.

The shallowest of all the Great Lakes, Lake Erie, drains through the Niagara River (and Welland Canal) over Niagara Falls and into Lake Ontario. The last lake in the system, Lake Ontario, empties through the St. Lawrence River to the Gulf of St. Lawrence and into the Atlantic Ocean.

Water levels and flows in the system depend upon the balance between the amount of water going into the lakes (inflows, precipitation on the lake surface, runoff from the drainage area, diversions and condensation) and the amount going out (evaporation, outflow, diversions and consumption). If more water goes into a lake than goes out, the level will rise; if more water goes out than the lake receives in supplies, the level will fall. This balance changes from year to year and season to season.

In addition strong and sustained winds, as well as changes in barometric pressure, can cause changes in the surface of a lake. For example, a strong wind blowing from one direction for several hours can cause the phenomenon known as wind set-up, or storm surge. (See *Level News*, March, 1994).

Despite their sometimes dramatic responses to storms and changes in air pressure, the sizes of the lakes and limitations of the connecting channels make the system relatively slow to respond to major changes in water supplies.

Adapted from *Levels Reference Study: Great Lakes-St. Lawrence River Basin*, Levels Reference Study Board, 1993.

Also Available From The Great Lakes Water Level Communication Centre

- *Great Lakes Water Levels (Revised 1993)* - 20-page illustrated booklet describing Great Lakes hydraulics and hydrology. Suitable for Grade 5 and up.
- *Brochure on the International Great Lakes Datum (1992)* - Fold-out pamphlet describing Great Lakes Datum and how it is updated. Suitable for readers with specialized interests in Great Lakes-St. Lawrence water levels.
- *Great Lakes-St. Lawrence River Regulation: What it Means and How it Works (1990)* - 12-page illustrated booklet describing the history and operations of lake regulation plans. Suitable for Grade 8 and up.

- *Annual Reports on the Water Levels of the Great Lakes and St. Lawrence River: 1985-1993* - 10-15 page reports (+ appendices) on water levels and flows, and on water management activities by Environment Canada - Ontario Region. Suitable for Grade 10 and up.

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